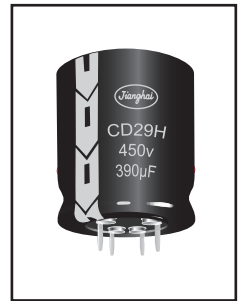
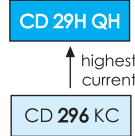


3000h at 105°C

- Long Useful Life
- Highest Ripple Current
- Industrial Power Supplies and Inverters



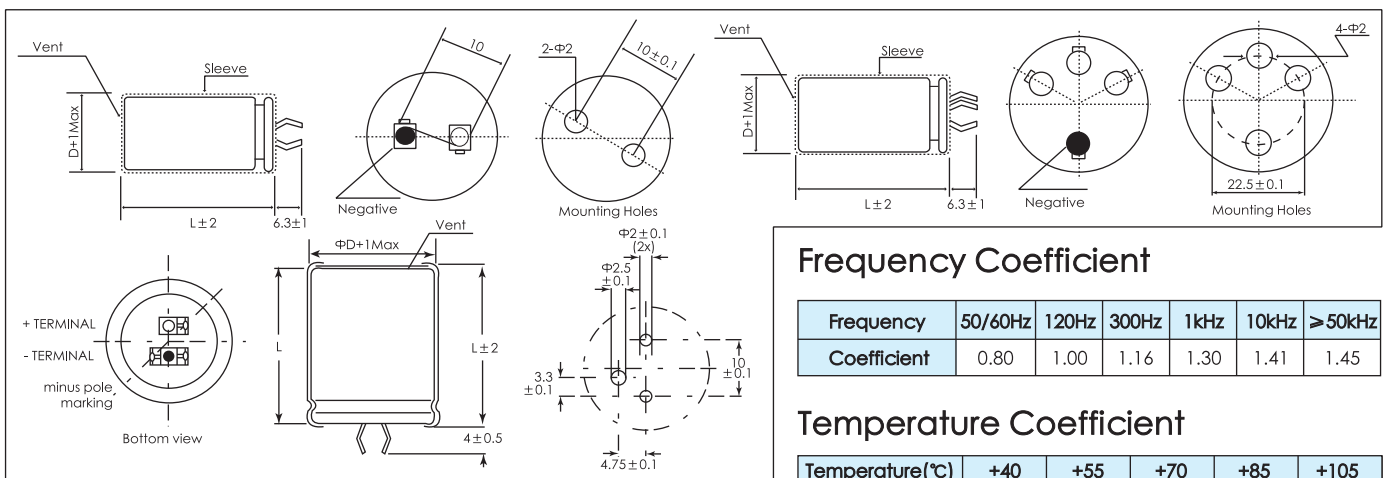
SNAP-IN/LUG

| Items | Characteristics | | | | | | | | | | | | |
|---|--|-------------------|-----------|-----|------|---------|---------|---|------|--|--|--|------|
| Operating Temperature Range (°C) | -40 ~ +105 | | | | | | | | | | | | |
| Voltage Range (V) | 160 ~ 450 | | | | | | | | | | | | |
| Capacitance Range (µF) | 56 ~ 2200 | | | | | | | | | | | | |
| Capacitance Tolerance (20°C, 120Hz) | ± 20% | | | | | | | | | | | | |
| Leakage Current (µA) | After 5 minutes at 20°C application of rated voltage, leakage current is not more than 0.01CV or 1.5mA, whichever is smaller. C: Nominal Capacitance (µF) V: Rated Voltage (V) | | | | | | | | | | | | |
| Dissipation Factor (20°C, 120Hz) | <table border="1"> <tr> <th>Rated Voltage (V)</th> <th>160</th> <th>200</th> <th>250</th> <th>350</th> <th>400~450</th> </tr> <tr> <th>Tan δ (max)</th> <td colspan="4">0.15</td> <td>0.12</td> </tr> </table> | Rated Voltage (V) | 160 | 200 | 250 | 350 | 400~450 | Tan δ (max) | 0.15 | | | | 0.12 |
| | Rated Voltage (V) | 160 | 200 | 250 | 350 | 400~450 | | | | | | | |
| Tan δ (max) | 0.15 | | | | 0.12 | | | | | | | | |
| Stability at Low Temperature (Impedance Ratio at 120Hz) | <table border="1"> <tr> <th>Rated Voltage (V)</th> <th colspan="5">160 ~ 450</th> </tr> <tr> <th>Z_{-40°C} / Z_{+20°C}</th> <td colspan="5">4</td> </tr> </table> | Rated Voltage (V) | 160 ~ 450 | | | | | Z _{-40°C} / Z _{+20°C} | 4 | | | | |
| | Rated Voltage (V) | 160 ~ 450 | | | | | | | | | | | |
| Z _{-40°C} / Z _{+20°C} | 4 | | | | | | | | | | | | |

| | Useful Life | | Load Life | Endurance Test | Shelf Life |
|---|---|--|---|---|--|
| Lifetime | 5000h | >100000h | 3000h | 3000h | 1000h |
| Leakage Current | Not more than specified value | | Not more than specified value | Not more than specified value | Not more than specified value |
| Capacitance Change | Within ± 30% of initial value | | Within ± 20% of initial value | Within ± 20% of initial value | Within ± 20% of initial value |
| Dissipation Factor | Not more than 300% of specified value | | Not more than 200% of specified value | Not more than 130% of specified value | Not more than 200% of specified value |
| Condition: Applied Voltage Applied Current Applied Temperature | U _R I _R 105°C | U _R 1.4 × I _R 50°C | U _R I _R 105°C | U _R I _R = 0 105°C | After test: U _R to be applied for 30min I _R = 0 >24h before measurement |

Dimensions

mm



CD 29H QH SERIES



Ratings for CD 29H QH Series

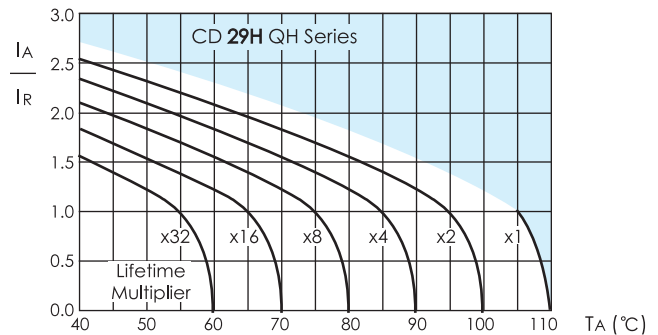
SNAP-IN/LUG

| U _r (Surge Voltage) Code | Rated Capa- citan- ce | Max ESR 20°C, 120Hz | Typ ESR 20°C, 120Hz | Rated Ripple Current 105°C, 120Hz | Size ΦD x L | P/N | |
|--|--------------------------------|---------------------------|---------------------------|---|----------------|---------------------|---------------------|
| (V) | (μF) | (mΩ) | (mΩ) | (Arms) | (mm) | - | |
| 160 (200) 2C | 330 | 603 | 355 | 1.42 | 22 x 25 | ECS2CQH331M□□220025 | |
| | 390 | 510 | 300 | 1.45 | 25 x 25 | ECS2CQH391M□□250025 | |
| | 470 | 424 | 245 | 1.63 | 22 x 35 | ECS2CQH471M□□220035 | |
| | 560 | 355 | 215 | 1.75 | 22 x 35 | ECS2CQH561M□□220035 | |
| | | 355 | 215 | 1.75 | 25 x 30 | ECS2CQH561M□□250030 | |
| | | 355 | 215 | 1.75 | 30 x 25 | ECS2CQH561M□□300025 | |
| | 680 | 293 | 178 | 1.98 | 22 x 40 | ECS2CQH681M□□220040 | |
| | | 293 | 178 | 1.98 | 25 x 35 | ECS2CQH681M□□250035 | |
| | | 243 | 145 | 2.35 | 22 x 50 | ECS2CQH681M□□220050 | |
| | 820 | 243 | 145 | 2.35 | 25 x 40 | ECS2CQH821M□□250040 | |
| | | 243 | 145 | 2.35 | 30 x 30 | ECS2CQH821M□□300030 | |
| | | 243 | 145 | 2.35 | 35 x 25 | ECS2CQH821M□□350025 | |
| | | 199 | 115 | 2.50 | 25 x 45 | ECS2CQH102M□□250045 | |
| | 1000 | 199 | 115 | 2.50 | 30 x 35 | ECS2CQH102M□□300035 | |
| | | 199 | 115 | 2.50 | 35 x 30 | ECS2CQH102M□□350030 | |
| | | 166 | 95 | 2.87 | 25 x 50 | ECS2CQH122M□□250050 | |
| | 1200 | 166 | 95 | 2.87 | 30 x 40 | ECS2CQH122M□□300040 | |
| | | 166 | 95 | 2.87 | 35 x 35 | ECS2CQH122M□□350035 | |
| | | 133 | 75 | 3.57 | 30 x 45 | ECS2CQH152M□□300045 | |
| | 1500 | 133 | 75 | 3.60 | 35 x 40 | ECS2CQH152M□□350040 | |
| | | 111 | 75 | 4.15 | 35 x 45 | ECS2CQH182M□□350045 | |
| | | 2200 | 91 | 58 | 4.65 | 35 x 50 | ECS2CQH222M□□350050 |
| | 200 (250) 2D | 220 | 905 | 550 | 1.1 | 22 x 25 | ECS2DQH221M□□220025 |
| | | 270 | 737 | 460 | 1.17 | 22 x 25 | ECS2DQH271M□□220025 |
| 330 | | 603 | 370 | 1.4 | 22 x 30 | ECS2DQH331M□□220030 | |
| | | 603 | 370 | 1.4 | 25 x 25 | ECS2DQH331M□□250025 | |
| 390 | | 510 | 310 | 1.45 | 22 x 30 | ECS2DQH391M□□220030 | |
| | | 424 | 260 | 1.55 | 22 x 35 | ECS2DQH471M□□220035 | |
| 470 | | 424 | 260 | 1.55 | 25 x 30 | ECS2DQH471M□□250030 | |
| | | 424 | 260 | 1.6 | 30 x 25 | ECS2DQH471M□□300025 | |
| | | 355 | 220 | 1.65 | 22 x 45 | ECS2DQH561M□□220045 | |
| 560 | | 355 | 220 | 1.65 | 25 x 35 | ECS2DQH561M□□250035 | |
| | | 293 | 180 | 1.68 | 22 x 50 | ECS2DQH681M□□220050 | |
| | | 293 | 180 | 1.92 | 25 x 40 | ECS2DQH681M□□250040 | |
| 680 | | 293 | 180 | 1.92 | 30 x 30 | ECS2DQH681M□□300030 | |
| | | 293 | 180 | 2.2 | 35 x 25 | ECS2DQH681M□□350025 | |
| | | 243 | 150 | 2.2 | 25 x 45 | ECS2DQH821M□□250045 | |
| 820 | | 243 | 150 | 2.2 | 30 x 35 | ECS2DQH821M□□300035 | |
| | | 243 | 150 | 2.4 | 35 x 30 | ECS2DQH821M□□350030 | |
| | | 199 | 120 | 2.4 | 30 x 40 | ECS2DQH102M□□300040 | |
| 1000 | | 199 | 120 | 2.4 | 35 x 35 | ECS2DQH102M□□350035 | |
| | | 166 | 100 | 2.75 | 30 x 45 | ECS2DQH122M□□300045 | |
| | | 166 | 100 | 2.75 | 35 x 40 | ECS2DQH122M□□350040 | |
| 1500 | | 133 | 80 | 3.45 | 35 x 40 | ECS2DQH152M□□350040 | |
| | | 1800 | 111 | 68 | 4 | 35 x 45 | ECS2DQH182M□□350045 |
| | | 2200 | 91 | 56 | 4.5 | 35 x 50 | ECS2DQH222M□□350050 |
| 250 (300) 2E | 180 | 1106 | 620 | 1 | 22 x 25 | ECS2EQH181M□□220025 | |
| | 220 | 905 | 570 | 1.2 | 22 x 30 | ECS2EQH221M□□220030 | |
| | 270 | 905 | 570 | 1.2 | 25 x 25 | ECS2EQH221M□□250025 | |
| | 330 | 737 | 470 | 1.25 | 22 x 35 | ECS2EQH271M□□220035 | |
| | | 603 | 380 | 1.3 | 22 x 40 | ECS2EQH331M□□220040 | |
| | 390 | 603 | 380 | 1.35 | 25 x 30 | ECS2EQH331M□□250030 | |
| | | 603 | 380 | 1.35 | 30 x 25 | ECS2EQH331M□□300025 | |
| | | 510 | 325 | 1.4 | 22 x 45 | ECS2EQH391M□□220045 | |
| | 470 | 510 | 325 | 1.45 | 25 x 35 | ECS2EQH391M□□250035 | |
| | | 424 | 268 | 1.65 | 22 x 50 | ECS2EQH471M□□220050 | |
| | | 424 | 268 | 1.65 | 30 x 30 | ECS2EQH471M□□300030 | |
| | 560 | 424 | 268 | 1.65 | 35 x 25 | ECS2EQH471M□□350025 | |
| | | 355 | 225 | 1.85 | 25 x 45 | ECS2EQH561M□□250045 | |
| | | 355 | 225 | 1.85 | 30 x 35 | ECS2EQH561M□□300035 | |
| | 680 | 355 | 225 | 1.85 | 35 x 30 | ECS2EQH561M□□350030 | |
| | | 293 | 185 | 2.2 | 25 x 50 | ECS2EQH681M□□250050 | |
| | | 293 | 185 | 2.2 | 30 x 40 | ECS2EQH681M□□300040 | |
| | 820 | 243 | 153 | 2.5 | 30 x 45 | ECS2EQH821M□□300045 | |
| | | 243 | 153 | 2.5 | 30 x 50 | ECS2EQH821M□□300050 | |
| | | 199 | 125 | 2.9 | 30 x 50 | ECS2EQH102M□□300050 | |
| | 1000 | 199 | 125 | 2.9 | 35 x 40 | ECS2EQH102M□□350040 | |
| | | 166 | 105 | 3.3 | 35 x 45 | ECS2EQH122M□□350045 | |
| | | 133 | 85 | 3.8 | 35 x 50 | ECS2EQH152M□□350050 | |
| | 350 (400) 2V | 68 | 2927 | 1280 | 0.7 | 22 x 25 | ECS2VQH680M□□220025 |
| 100 | | 1990 | 1060 | 0.87 | 22 x 30 | ECS2VQH101M□□220030 | |
| 120 | | 1990 | 1060 | 0.87 | 25 x 25 | ECS2VQH101M□□250025 | |
| | | 1659 | 880 | 0.9 | 22 x 35 | ECS2VQH121M□□220035 | |
| 150 | | 1327 | 700 | 0.98 | 22 x 40 | ECS2VQH151M□□220040 | |
| | | 1327 | 700 | 1.02 | 25 x 30 | ECS2VQH151M□□250030 | |
| | | 1327 | 700 | 1.02 | 30 x 25 | ECS2VQH151M□□300025 | |
| 180 | | 1106 | 580 | 1.11 | 22 x 45 | ECS2VQH181M□□220045 | |
| | | 1106 | 580 | 1.11 | 25 x 35 | ECS2VQH181M□□250035 | |
| | | 1106 | 580 | 1.12 | 30 x 30 | ECS2VQH181M□□300030 | |
| 220 | | 905 | 480 | 1.16 | 22 x 50 | ECS2VQH221M□□220050 | |
| | | 905 | 480 | 1.2 | 25 x 40 | ECS2VQH221M□□250040 | |
| | | 905 | 480 | 1.2 | 35 x 25 | ECS2VQH221M□□350025 | |
| 270 | | 737 | 390 | 1.26 | 25 x 50 | ECS2VQH271M□□250050 | |
| | | 737 | 390 | 1.31 | 30 x 35 | ECS2VQH271M□□300035 | |
| | | 737 | 390 | 1.26 | 35 x 30 | ECS2VQH271M□□350030 | |
| 330 | | 603 | 320 | 1.45 | 30 x 45 | ECS2VQH331M□□300045 | |
| | | 603 | 320 | 1.45 | 35 x 35 | ECS2VQH331M□□350035 | |
| | | 510 | 270 | 1.58 | 30 x 50 | ECS2VQH391M□□300050 | |
| 390 | | 510 | 270 | 1.58 | 35 x 40 | ECS2VQH391M□□350040 | |
| | | 470 | 424 | 1.69 | 35 x 45 | ECS2VQH471M□□350045 | |
| | | 560 | 355 | 190 | 1.89 | 35 x 50 | ECS2VQH561M□□350050 |

| U _r (Surge Voltage) Code | Rated Capa- citan- ce | Max ESR 20°C, 120Hz | Typ ESR 20°C, 120Hz | Rated Ripple Current 105°C, 120Hz | Size ΦD x L | P/N |
|--|--------------------------------|---------------------------|---------------------------|---|---------------------|---------------------|
| (V) | (μF) | (mΩ) | (mΩ) | (Arms) | (mm) | - |
| 400 (450) 2G | 68 | 2342 | 1260 | 0.48 | 22 x 25 | ECS2GQH680M□□220025 |
| | 82 | 1942 | 1050 | 0.57 | 22 x 30 | ECS2GQH820M□□220030 |
| | | 1942 | 1050 | 0.56 | 25 x 25 | ECS2GQH820M□□250025 |
| | 100 | 1592 | 860 | 0.65 | 22 x 35 | ECS2GQH101M□□220035 |
| | | 1592 | 860 | 0.65 | 25 x 25 | ECS2GQH101M□□250025 |
| | 120 | 1327 | 718 | 0.71 | 22 x 35 | ECS2GQH121M□□220035 |
| | | 1327 | 718 | 0.71 | 25 x 30 | ECS2GQH121M□□250030 |
| | | 1327 | 718 | 0.71 | 30 x 25 | ECS2GQH121M□□300025 |
| | 150 | 1062 | 575 | 0.85 | 22 x 40 | ECS2GQH151M□□220040 |
| | | 1062 | 575 | 0.85 | 25 x 35 | ECS2GQH151M□□250035 |
| | | 1062 | 575 | 0.85 | 30 x 25 | ECS2GQH151M□□300025 |
| | 180 | 885 | 479 | 1 | 22 x 50 | ECS2GQH181M□□220050 |
| | | 885 | 479 | 1 | 25 x 40 | ECS2GQH181M□□250040 |
| | | 885 | 479 | 1 | 30 x 30 | ECS2GQH181M□□300030 |
| | 220 | 885 | 479 | 1 | 35 x 25 | ECS2GQH181M□□350025 |
| | | 724 | 292 | 1.2 | 25 x 45 | ECS2GQH221M□□250045 |
| | | 724 | 292 | 1.2 | 30 x 25 | ECS2GQH221M□□300035 |
| | 270 | 724 | 292 | 1.2 | 35 x 30 | ECS2GQH221M□□350030 |
| | | 590 | 319 | 1.35 | 25 x 50 | ECS2GQH271M□□250050 |
| | | 590 | 319 | 1.35 | 30 x 40 | ECS2GQH271M□□300040 |
| | 330 | 590 | 319 | 1.35 | 35 x 30 | ECS2GQH271M□□350030 |
| | | 483 | 260 | 1.6 | 30 x 45 | ECS2GQH331M□□300045 |
| | | 483 | 260 | 1.6 | 35 x 35 | ECS2GQH331M□□350035 |
| | 390 | 408 | 220 | 1.8 | 30 x 50 | ECS2GQH391M□□300050 |
| 408 | | 220 | 1.8 | 35 x 40 | ECS2GQH391M□□350040 | |
| 339 | | 183 | 2.1 | 35 x 45 | ECS2GQH471M□□350045 | |
| 560 | 284 | 154 | 2.3 | 35 x 50 | ECS2GQH561M□□350050 | |
| | 56 | 2844 | 1360 | 0.5 | 22 x 25 | ECS2WQH560M□□220025 |
| | 68 | 2342 | 1170 | 0.6 | 22 x 30 | ECS2WQH680M□□220030 |
| 82 | 1942 | 970 | 0.65 | 22 x 35 | ECS2WQH820M□□220035 | |
| | 1592 | 790 | 0.72 | 22 x 35 | ECS2WQH101M□□220035 | |
| | 1592 | 790 | 0.72 | 25 x 30 | ECS2WQH101M□□250030 | |
| 100 | 1592 | 790 | 0.72 | 30 x 25 | ECS2WQH101M□□300025 | |
| | 1327 | 660 | 0.8 | 22 x 45 | ECS2WQH121M□□220045 | |
| | 1327 | 660 | 0.8 | 25 x 35 | ECS2WQH121M□□250035 | |
| 120 | 1062 | 530 | 0.95 | 22 x 50 | ECS2WQH151M□□220050 | |
| | 1062 | 530 | 0.95 | 25 x 40 | ECS2WQH151M□□250040 | |
| | 1062 | 530 | 0.95 | 30 x 30 | ECS2WQH151M□□300030 | |
| 150 | 1062 | 530 | 0.95 | 35 x 25 | ECS2WQH151M□□350025 | |
| | 885 | 440 | 1.05 | 25 x 45 | ECS2WQH181M□□250045 | |
| | 885 | 440 | 1.05 | 30 x 35 | ECS2WQH181M□□300035 | |
| 180 | 724 | 360 | 1.3 | 25 x 50 | ECS2WQH221M□□250050 | |
| | 724 | 360 | 1.3 | 30 x 40 | ECS2WQH221M□□300040 | |
| | 724 | 360 | 1.3 | 35 x 30 | ECS2WQH221M□□350030 | |
| 270 | 590 | 295 | 1.5 | 30 x 45 | ECS2WQH271M□□300045 | |
| | 590 | 295 | 1.5 | 35 x 35 | ECS2WQH271M□□350035 | |
| | 483 | 240 | 1.9 | 30 x 50 | ECS2WQH331M□□300050 | |
| 330 | 483 | 240 | 1.9 | 35 x 40 | ECS2WQH331M□□350040 | |
| | 408 | 205 | 1.9 | 35 x 45 | ECS2WQH391M□□350045 | |
| | 470 | 339 | 170 | 2.2 | 35 x 50 | ECS2WQH471M□□350050 |

Customer products are available on request.

Lifetime Diagram



IA = actual ripple current at 120Hz, IR = rated ripple current at 120Hz, 105°C
Multiplier of Useful Life as a function of ambient temperature and ripple current load